

Amendments To The Claims:

Please amend the claims as shown.

1 – 6 (canceled)

7. (new) A temperature measuring transducer, comprising:

a variable electrical resistor having variable resistance that depends on a chemical or physical variable; and

an evaluation device connected to the variable resistor by three lines through which the lines can be checked for a line break, wherein, for a break in a first of two lines which are connected on the same side of the variable resistor, a measurement of the resistance value using the first line is performed with the second line by routing the current conducted through the variable resistor via the second line and by tapping off the falling voltage associated with the second line.

8. (new) The measuring device in accordance with claim 7, wherein the evaluation device compensates for the influence of the resistance of the second line.

9. (new) The measuring device in accordance with claim 8, wherein the evaluation device further comprises a control and processing unit and a switchable current source wherein the current source for line checking is switchable to either the first or second line, which are connected to a first side of the variable resistor and that the current flowing through the variable resistor is recorded and evaluated to establish a line break.

10. (new) The measuring device in accordance with claim 9, wherein the evaluation device further comprises a controllable switchover unit that checks the lines connected to the second side of the variable resistor and is switched to direct away a current from the current source into the variable resistor and the current flowing through the variable resistor is recorded and evaluated to identify a line break.

11. (new) The measuring device in accordance with claim 10, wherein the evaluation device is configured to determine the line resistances for intact lines.

12. (new) The measuring device in accordance with claim 11, wherein measuring transducer is suitable for temperature measurement and for use in an automation technology system.

13. (new) The measuring device in accordance with claim 7, wherein the physical variable is temperature.

14. (new) The measuring device in accordance with claim 7, wherein the evaluation device is connected to the variable resistor by four lines.

15. (new) The measuring device in accordance with claim 9, wherein the switchable current source is set to a plurality of discrete current outputs.

16. (new) The measuring device in accordance with claim 7, wherein tapping off the falling voltage enables the measuring result value to not be influenced by a voltage drop at the measuring lines.

17. (new) A method for measuring a temperature, comprising:
applying a current to an electrical resistor having variable resistance that depends on temperature;

evaluating an associated voltage drop across the variable resistor via an evaluation device connected to the variable resistor by three lines through which the lines can be checked for a line break, wherein, for a break in a first of two lines which are connected on the same side of the variable resistor, a measurement of the resistance value using the first line is performed with the second line by routing the current conducted through the variable resistor via the second line and by tapping off the falling voltage associated with the second line; and

correlating the evaluated voltage drop of the variable resistor with the associated temperature to be measured.

18. (new) The method in accordance with claim 17, wherein the evaluation device compensates for the influence of the resistance of the second line.

19. (new) The method in accordance with claim 18, wherein the evaluation device further comprises a control and processing unit and a switchable current source wherein the current source for line checking is switchable to either the first or second line, which are connected to a first side of the variable resistor and that the current flowing through the variable resistor is recorded and evaluated to establish a line break.

20. (new) The method in accordance with claim 19, wherein the evaluation device further comprises a controllable switchover unit that checks the lines connected to the second side of the variable resistor and is switched to direct away a current from the current source into the variable resistor and the current flowing through the variable resistor is recorded and evaluated to identify a line break.

21. (new) The method in accordance with claim 20, wherein the evaluation device is configured to determine the line resistances for intact lines.

22. (new) The method in accordance with claim 21, wherein measuring transducer is suitable for temperature measurement and for use in an automation technology system.

23. (new) The method in accordance with claim 22, wherein the physical variable is temperature.

24. (new) The method in accordance with claim 17, wherein the evaluation device is connected to the variable resistor by four lines.

25. (new) The method in accordance with claim 19, wherein the switchable current source is set to a plurality of discrete current outputs.

26. (new) The method in accordance with claim 17, wherein tapping off the falling voltage enables the measuring result value to not be influenced by a voltage drop at the measuring lines.